

Listing of the Claims:

Claims 1-13 (Canceled)

Claim 14. (Currently amended): A laser scanner measuring system for measuring macroscopic geometric parameters of an object, the macroscopic geometric parameters including at least one of contour, size and wall thickness of the object, the system comprising:

an emitter unit having a laser, a beam deflector unit and an optical emitter system which define a scanning beam path and a scanning plane;

a receiver unit including a photo detector disposed in the focal plane of an optical receiver system for a receiver beam path, wherein the surface normal of said optical receiver system is parallel with the scanning beam path, the receiver unit receiving the beam after scanning the object and generating a signal;

a dark field stop disposed ahead of said photo detector in the receiver beam path in the focal plane of said optical receiver system where the dark field stop is arranged to block a central beam in the receiver beam path;

a beam splitter ahead of said dark field stop for splitting a partial beam from the receiver beam path, said photo detector including a photo diode arranged in said partial beam, said photo diode being disposed approximately in the focal point of said optical receiver system; and

an electronic analyzing system for determining the macroscopic geometric parameters from the signal.

Claim 15. (Previously Presented): A laser scanner measuring system according to Claim 14, wherein said emitter unit and said receiver unit are disposed on the same side relative to the object to be measured.

Claim 16. (Original): A laser scanner measuring system according to Claim 15, further comprising a retro reflector unit arranged behind said object to be measured, when seen from said emitter unit, which retro reflector unit reflects any incident radiation back either in itself or with a parallel offset such that the receiver beam path will be located in a plane offset in parallel from the scanning plane.

Claim 17. (Previously Presented): A laser scanner measuring system according to Claim 14, further comprising at least one retro reflector or a retro-reflecting marker disposed inside said emitter unit.

Claim 18. (Previously Presented): A laser scanner measuring system according to Claim 14, further comprising additional receiver units or retro reflectors disposed at an angle different from 0° or 180° relative to an optical axis of the scanner unit in the scanning plane.

Claim 19. (Original): A laser scanner measuring system according to Claim 14, further comprising an optical system arranged in the scanner beam path for splitting the scanning beam in the direction orthogonal on the scanning direction.

Claim 20. (Previously Presented): A laser scanner measuring system according to Claim 19, wherein there is formed a grid having lines oriented orthogonally with respect to the scanning direction.

Claim 21. (Original): A laser scanner measuring system according to Claim 14, further comprising an optical system arranged in the scanner beam path for splitting the scanning beam in the direction parallel with the scanning direction.

Claim 22. (Previously Presented): A laser scanner measuring system according to Claim 21, where there is formed a grid having lines oriented parallel with respect to the scanning direction.

Claim 23. (Previously Presented): A laser scanner measuring system according to Claim 14, further comprising optical elements disposed in the scanning beam path and/or the receiver beam path for radiation of different polarisation.

Claim 24. (Canceled)

Claim 25. (Previously Presented): A laser scanner measuring system according to Claim 14, further comprising filters selective in terms of wavelength disposed in the receiver beam path.

Claim 26. (Previously Presented): A laser scanner measuring system according to Claim 25, wherein said filters are interference filters, color filters or cut-off filters.

Claim 27. (Previously Presented): A laser scanner measuring system according to Claim 14, wherein said emitter unit and said receiver unit form a single combination unit and wherein a reference beam path is realised in the combination unit, in the outside space or by means of a light guide, which is superimposed by the beam path coming from the object to be measured in

such a way that the resulting interference pattern which varies locally and in the course of time is detected by means of at least one detector element.

Claim 28. (Previously Presented): A laser scanner measuring system according to Claim 14, wherein said measuring system is adapted to control a production process.

Claim 29. (Currently Amended): A laser scanner measuring system for measuring macroscopic geometric parameters of an object, the macroscopic geometric parameters including at least one of contour, size and wall thickness of the object, the system comprising

an emitter unit having a laser, a beam deflector unit and an optical emitter system, which define a scanning beam path as well as a scanning plane;

a receiver unit including a photo detector disposed in the focal plane of an optical receiver system for a receiver beam path, the surface normal of said optical receiver system being parallel with the scanning beam path, and said photo detector being a photo diode array containing at least two photo diodes or a position-resolving photo diode, the receiver unit receiving the beam after scanning the object and generating a signal; and

an electronic analyzing system for determining the macroscopic geometric parameters from the signal.

Claim 30. (Original): A laser scanner measuring system according to Claim 29, wherein said emitter unit and said receiver unit are disposed on the same side relative to an object to be measured.

Claim 31. (Original): A laser scanner measuring system according to Claim 30, further comprising a retro reflector unit provided behind said object to be measured, when seen from said emitter unit, which reflects any incident radiation back either in itself or with a parallel offset such that the receiver beam path will be located in a plane offset in parallel from the scanning plane.

Claim 32. (Previously Presented): A laser scanner measuring system according to Claim 29, further comprising at least one retro reflector or a retro-reflecting marker disposed inside said emitter unit.

Claim 33. (Previously Presented): A laser scanner measuring system according to Claim 29, further comprising additional receiver units or retro reflectors disposed at an angle different from 0° or 180° relative to an optical axis of the scanner unit in the scanning plane.

Claim 34. (Original): A laser scanner measuring system according to Claim 29, further comprising an optical system arranged in the scanner beam path for splitting the scanning beam in the direction orthogonal on the scanning direction.

Claim 35. (Previously Presented): A laser scanner measuring system according to Claim 34, wherein there is formed a grid having lines oriented orthogonally with respect to the scanning direction.

Claim 36. (Original): A laser scanner measuring system according to Claim 29, further comprising an optical system arranged in the scanner beam path for splitting the scanning beam in the direction parallel with the scanning direction.

Claim 37. (Previously Presented): A laser scanning measuring system according to Claim 36, where there is formed a grid having lines oriented parallel with respect to the scanning direction.

Claim 38. (New) A laser scanner measuring system according to claim 29, wherein said electronic analyzing system is adapted to determine diameters in two orthogonal directions of a transparent rod or tube placed as said object in the scanning beam path from positions of local intensity maxima on one photo diode of the photo diode array or the position resolving photo diode.

Claim 39. (New) A laser scanner measuring system according to claim 29, wherein said electronic analyzing system is adapted to determine a diameter and wall thickness of a transparent tube placed as said object in the scanning beam path from positions of local intensity maxima on one photo diode of the photo diode array or the position resolving photo diode.

Claim 40. (New) A laser scanner measuring system according to claim 14, wherein said electronic analyzing system is adapted to determine diameters in two orthogonal directions of a transparent rod or tube placed as said object in the scanning beam path from intensity maxima on the photo detector.

Claim 41. (New) A laser scanner measuring system according to claim 14, wherein said electronic analyzing system is adapted to determine a diameter and wall thickness of a transparent tube placed as said object in the scanning beam path from intensity maxima on the photo detector.